IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of processing a signal, comprising:

applying an algorithm to:

selectively negate a plurality of samples of the signal to provide negated and non-negated samples of the signal; and

use the negated and non-negated samples as in-phase (I) and/or quadrature (Q) components of a plurality of complex samples;

~~the algorithm being such that~~ wherein the plurality of complex samples ~~are equivalent to the result that would be obtained by applying~~ correspond to an output of an effective sampling function ~~to the signal~~; and

selecting a beat frequency of the effective sampling function by adjusting the algorithm;

wherein selecting a beat frequency of the effective sampling function comprises adjusting the selection of the plurality of samples of the signal that are negated.

2. (Original) A method of processing a signal as recited in Claim 1, further comprising sampling the signal to obtain the plurality of samples of the signal.

3. (Original) A method of processing a signal as recited in Claim 1, further comprising undersampling the signal to obtain the plurality of samples of the signal.

4. (Original) A method of processing a signal as recited in Claim 1, wherein the effective sampling function is a complex sampling function.

5. (Canceled)

6. (Currently amended) A method of processing a signal ~~as recited in Claim 1~~, comprising:

applying an algorithm to:

selectively negate a plurality of samples of the signal to provide negated and non-negated samples of the signal; and

use the negated and non-negated samples as in-phase (I) and/or quadrature (Q) components of a plurality of complex samples;

wherein the plurality of complex samples correspond to the output of an effective sampling function; and

selecting a beat frequency of the effective sampling function by adjusting the algorithm;

wherein selecting a beat frequency of the effective sampling function comprises adjusting which ones of the negated and non-negated samples are used as in-phase components.

7. (Currently amended) A method of processing a signal ~~as recited in Claim 1~~, comprising:

applying an algorithm to:

selectively negate a plurality of samples of the signal to provide negated and non-negated samples of the signal; and

use the negated and non-negated samples as in-phase (I) and/or quadrature (Q) components of a plurality of complex samples;

wherein the plurality of complex samples correspond to the output of an effective sampling function; and

selecting a beat frequency of the effective sampling function by adjusting the algorithm;

wherein selecting a beat frequency of the effective sampling function comprises adjusting which ones of the negated and non-negated samples are used as quadrature components.

8. (Original) A method of processing a signal as recited in Claim 1, wherein the plurality of samples comprises a plurality of digital samples at a non-zero carrier frequency.

9. (Original) A method of processing a signal as recited in Claim 1, wherein the plurality of complex samples comprises a plurality of complex samples of the signal at baseband.

10. (Original) A method of processing a signal as recited in Claim 1, wherein the signal is a modulated signal.

11. (Original) A method of processing a signal as recited in Claim 1, wherein the signal is a modulated signal and the plurality of complex samples comprise a directly downconverted complex image of the modulated signal.

12. (Currently amended) A method of processing a signal ~~as recited in Claim 1~~, comprising:

applying an algorithm to:

selectively negate a plurality of samples of the signal to provide negated and non-negated samples of the signal; and

use the negated and non-negated samples as in-phase (I) and/or quadrature (Q) components of a plurality of complex samples;

wherein the plurality of complex samples correspond to the output of an effective sampling function; and

selecting a beat frequency of the effective sampling function by adjusting the algorithm;

wherein applying the algorithm comprises negating the selected samples according to a negation sequence.

13. (Currently amended) A method of processing a signal as recited in Claim [[1]] 12, wherein ~~applying the algorithm comprises negating the selected samples according to a negation sequence and~~ selecting a beat frequency of the effective sampling function by adjusting the algorithm comprises changing the negation sequence.

14. (Original) A method of processing a signal as recited in Claim 1, wherein applying the algorithm comprises sorting the negated and non-negated samples samples into in-phase and quadrature components according to a sorting sequence.

15. (Original) A method of processing a signal as recited in Claim 1, wherein applying the algorithm comprises sorting the negated and non-negated samples samples into in-phase and quadrature components according to a sorting sequence, and selecting a beat frequency of the effective sampling function by adjusting the algorithm comprises changing the sorting sequence.

16. (Original) A method of processing a signal as recited in Claim 1, wherein each of the plurality of samples results in either an I component of one of the plurality of complex samples or a Q component of one of the plurality of complex samples.

17. (Original) A method of processing a signal as recited in Claim 1, wherein each of the plurality of samples results in both an I component of one of the plurality of complex samples and a Q component of one of the plurality of complex samples.

18. (Currently amended) A method of processing a signal ~~as recited in Claim 1~~, comprising:

applying an algorithm to:

selectively negate a plurality of samples of the signal to provide negated and non-negated samples of the signal; and

use the negated and non-negated samples as in-phase (I) and/or quadrature (Q) components of a plurality of complex samples;

wherein the plurality of complex samples correspond to the output of an effective sampling function; and

selecting a beat frequency of the effective sampling function by adjusting the algorithm;

wherein applying the algorithm comprises sorting each of the plurality of samples to determine whether the sample will result in an in-phase (I) component or a quadrature (Q) component and selecting the beat frequency of the effective sampling function comprises reversing the order of sorting to select a positive image or a negative image.

19. (Currently amended) A method of processing a signal ~~as recited in Claim 1~~, comprising:

applying an algorithm to:

selectively negate a plurality of samples of the signal to provide negated and non-negated samples of the signal; and

use the negated and non-negated samples as in-phase (I) and/or quadrature (Q) components of a plurality of complex samples;

wherein the plurality of complex samples correspond to the output of an effective sampling function; and

selecting a beat frequency of the effective sampling function by adjusting the algorithm;

wherein adjusting the algorithm comprises modifying a beat coefficient.

20. (Currently amended) A method of processing a signal as recited in Claim [[1]] 19, wherein adjusting the algorithm comprises modifying a beat coefficient "n" comprising an integer by which the rate of complex sampling events "T" is multiplied to yield the period of the beat frequency of the effective sampling function.

21. (Currently amended)A method of processing a signal as recited in Claim [[1]] 19, wherein the plurality of complex samples includes a baseband signal having a bandwidth, and the effective sampling function includes a beat frequency greater than one half of the bandwidth.

22. (Currently amended) A complex sample generation module configured to:

apply an algorithm to:

selectively negate a plurality of samples of a signal to provide negated and non-negated samples of the signal; and

use the negated and non-negated samples as in-phase (I) and/or quadrature (Q) components of a plurality of complex samples;

~~the algorithm being such that~~ wherein the plurality of complex samples ~~are equivalent to the result that would be obtained by applying~~ correspond to the output of an effective sampling function ~~to the signal~~;

and select a beat frequency of the effective sampling function by adjusting the algorithm;

wherein the complex sample generation module comprises a negation module configured to selectively negate selected samples and a sorting module configured to sort the negated and non-negated samples as I and Q components.

23. (Canceled)

24. (Original) A complex sample generation module as recited in Claim 22, further comprising an input connection configured to receive the plurality of samples and provide the plurality of samples to the complex sample generation module.

25. (Original) A complex sample generation module as recited in Claim 22, further comprising an analog to digital converter configured to generate the plurality of samples of the signal.

26. (Original) A complex sample generation module as recited in Claim 22, wherein the complex sample generation module comprises a field programmable gate array (FPGA).

27. (Original) A complex sample generation module as recited in Claim 22, wherein the complex sample generation module comprises an integrated circuit.

28. (Original) A complex sample generation module as recited in Claim 22, wherein the complex sample generation module comprises a processor configured to negate the selected samples, sort the plurality of samples, and generate the plurality of complex samples.

29. (Currently amended) A computer program product for processing a signal, the computer program product being embodied in a computer readable medium and comprising computer instructions for:

applying an algorithm to:

selectively negate a plurality of samples of the signal to provide negated and non-negated samples of the signal; and

use the negated and non-negated samples as in-phase (I) and/or quadrature (Q) components of a plurality of complex samples;

~~the algorithm being such that~~ wherein the plurality of complex samples ~~are equivalent to the result that would be obtained by applying~~ correspond to an output of an effective sampling function ~~to the signal~~; and

selecting a beat frequency of the effective sampling function by adjusting the algorithm;

wherein selecting a beat frequency of the effective sampling function comprises adjusting the selection of the plurality of samples of the signal that are negated.